(FILE 'HOME' ENTERED AT 12:25:10 ON 27 AUG 2004)

FILE 'CAPLUS' ENTERED AT 12:26:13 ON 27 AUG 2004

		E	BOVIN NIKOLAI/IN,AU
L1	16	S	E1-9
		E	TUSIKOV ALEXANDER/IN,AU
L2	2	S	E5-7
		E	CHINAREV MARIA/IN,AU
		E	CHINAREV ALEXANDER/IN,AU
L3	6	S	E4-9
		E	DICUSAR MARIA/IN,AU
L4	1	S	E5-6
		E	GAMBARIAN ALEXANDRA/IN,AU
		E	GAMBARYAN ALEXANDRA/IN,AU
L5	43	S	E1-6
		E	MARININA VALENTINA/IN,AU
L6	21	S	E1-6
L7	75	S	L1 OR L2 OR L3 OR L4 OR L5 OR L6
L8	6149	S	GLYCOCONJUGAT?
L9	200865	S	AGGREGAT?
L10	9596	S	MULTIVALEN?
L11	70226	S	INTERMOLECULAR?
L12	341737	S	VIRAL OR VIRUS
L13	414522	S	BACTERIA?
L14	45	S	L7 AND (L8 OR L9 OR L10 OR L11 OR L12 OR L13)

L14 ANSWER 1 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:644926 CAPLUS
TITLE: H5N1 chicken influenza **viruses** display a high binding affinity for Neu5Acα2-3Galβ1-4(6-HSO3)GlcNAc-containing receptors
AUTHOR(S): **Gambaryan, A. S.**; Tuzikov, A. B.; Pazynina, G. V.; Webster, R. G.; Matrosovich, M. N.; Bovin, N. V.
CORPORATE SOURCE: Chumakov Institute of Poliomyelitis and Viral Encephalitides, Moscow, Russia
SOURCE: Virology (2004), 326(2), 310-316
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB To characterize differences in the receptor-binding specificity of H5N1 chicken **viruses** and **viruses** of aquatic birds, we used a panel of synthetic polyacrylamide (PAA)-based sialylglycopolymers that carried identical terminal Neu5Acα2-3Gal fragments but varied by the structure of the next saccharide residues. A majority of duck **viruses** irresp. of their HA subtype, bound with the highest affinity to trisaccharide Neu5Acα2-3Galβ1-3GlcNAc, suggesting that these **viruses** preferentially recognize sialyloligosaccharide receptors with type 1 core (Galβ1-3GlcNAc). Substitution of 6-hydroxyl group of GlcNAc residue of tested sialylglycopolymers by 6-sulfo group had little effect on receptor binding by duck **viruses**. By contrast, H5N1 chicken and human **viruses** isolated in 1997 in Hong Kong preferred receptors with type 2 core (Galβ1-4GlcNAcβ) and bound sulfated trisaccharide Neu5Acα2-3Galβ1-4(6-HSO3)GlcNAcβ (6-Su-3'SLN) with the extraordinary high affinity. Another chicken **virus**, A/FPV/Rostok/34 (H7N1), and several mammalian **viruses** also displayed an increased affinity for sulfated sialyloligosaccharide receptor. The binding of chicken and mammalian **viruses** to tracheal epithelial cells of green monkey decreased after treatment of cells with glucosamine-6-sulfatase suggesting the presence of 6-O-Su-3'SLN determinants in the airway epithelium. It remains to be seen whether existence of the 6-O-Su-3'SLN groups in the human airway epithelial cells might facilitate infection of humans with H5N1 chicken **viruses**.

L14 ANSWER 2 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:548521 CAPLUS
TITLE: Evolution of hemagglutinin receptor specificity of influenza **viruses** during transmission from ducks to swines and humans
AUTHOR(S): **Marinina, V. P.**; **Gambaryan, A. S.**; Tuzikov, A. B.; Pozynina, G. V.; Bovin, N. V.; Fedyakina, I. T.; Yamnikova, S. S.; L'vov, D. K.; Matrosovich, M. N.
CORPORATE SOURCE: Inst. Poliomielita i Virusnykh Entsefalitov im. M. P. Chumakova, RAMN, Moscow, Russia
SOURCE: Voprosy Virusologii (2004), 49(3), 25-30
CODEN: VVIRAT; ISSN: 0507-4088
PUBLISHER: Izdatel'stvo Meditsina
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB The receptor properties of H1 and H2 influenza **viruses** (IV), isolated from duck, pig and man were studied by using the natural and synthetic sialoglycoconjugates. It was shown that **viruses**, isolated from different hosts, adapt themselves to the host cell receptors. The IV affinity was increasing to 6'-sialy(N-acetyllactosamine) in proportion as amino acids (in positions 138, 190, 194 and 225), which are for avian IV, were increasingly replacing. Some of the porcine **viruses** display adaptation to the human receptor, i.e. 6'sialy(N-acetyllactosamine), however, all tested porcine influenza **viruses**, belonging to different evolution branches, acquired even more affinity to sulfated and fucozyled derivs. of 3'-sialy(N-acetyllactosamine) - (Neu5ACα2-3gALβ1-4(fUCα1-3)(6-sulfo)GlcNAcβ).

L14 ANSWER 3 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:182729 CAPLUS
DOCUMENT NUMBER: 140:193120
TITLE: Non-glycosylated polyacrylamide conjugates and their

use for cytoprotection
INVENTOR(S): Rieben, Robert; Mohacsi, Paul; **Bovin, Nicolai Vladimirovich**; Korchagina, Elena Yurievna
PATENT ASSIGNEE(S): University of Bern, Switz.; Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004017999	A1	20040304	WO 2003-EP8987	20030812

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: EP 2002-18495 A 20020816

AB The present invention relates to non-glycosylated polyacrylamide conjugates, a method for protecting endothelial cells from complement-mediated cellular damage without systemic effects on blood coagulation, and the use of said non-glycosylated polyacrylamide conjugates as a medicament, for example, for prevention and treatment of sepsis, acute respiratory distress syndrome, or septic shock. For example, polyacrylamide-tyrosine-O-sulfate conjugate (PAA-STyr) with a 40% substitution rate was both a better complement inhibitor and a much less potent anticoagulant than dextran sulfate.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:169619 CAPLUS
TITLE: Receptor specificity of H5 influenza **virus** escape mutants
AUTHOR(S): Ilyushina, N. A.; Rudneva, I. A.; **Gambaryan, A. S.**; Tuzikov, A. B.; Bovin, N. V.
CORPORATE SOURCE: Laboratory of Virus Physiology, The D.I. Ivanovsky Institute of Virology, Moscow, 123098, Russia
SOURCE: Virus Research (2004), 100(2), 237-241
CODEN: VIREDF; ISSN: 0168-1702
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The binding of **viruses** to synthetic polyacrylamide (PAA)-based sialylglycoconjugates was used to characterize the receptor specificities of antibody escape mutants of the influenza **virus** A/Mallard/Pennsylvania/10218/84 (H5N2). The sialylglycoconjugates that were used carried identical terminal Neu5Acα2-3Gal moieties but differed in the structure of the next saccharide residue(s). Our data show that mutations in the vicinity of the hemagglutinin (HA) receptor-binding site (RBS) effect the recognition of the third saccharide residue and change the affinity pattern of binding. The affinity of the majority of the escape mutants for sialyl receptors increased compared to the parental strain.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 5 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:687913 CAPLUS
DOCUMENT NUMBER: 140:2654
TITLE: Receptor-binding properties of modern human influenza **viruses** primarily isolated in Vero and MDCK cells and chicken embryonated eggs
AUTHOR(S): Mochalova, Larisa; **Gambaryan, Alexandra**; Romanova, Julia; Tuzikov, Alexander; **Chinarev, Alexander**; Katinger, Dietmar; Katinger, Herman; Egorov, Andrej; Bovin, Nicolai

CORPORATE SOURCE: Shemyakin Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow, 117997, Russia
SOURCE: Virology (2003), 313(2), 473-480
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Elsevier Science
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To study the receptor specificity of modern human influenza H1N1 and H3N2 **viruses**, the analogs of natural receptors, namely sialyloligosaccharides conjugated with high mol. weight (about 1500 kDa) polyacrylamide as biotinylated and label-free probes, have been used. **Viruses** isolated from clin. specimens were grown in African green monkey kidney (Vero) or Madin-Darby canine kidney (MDCK) cells and chicken embryonated eggs. All Vero-derived **viruses** had hemagglutinin (HA) sequences indistinguishable from original **viruses** present in clin. samples, but HAs of three of seven tested MDCK-derived isolates had one or two amino acid substitutions. Despite these host-dependent mutations and differences in the structure of HA mols. of individual strains, all studied Vero- and MDCK-isolated **viruses** bound to Neu5Ac α2-6Galβ1-4GlcNAc (6'SLN) essentially stronger than to Neu5Acα2-6Galβ1-4Glc (6'SL). Such receptor-binding specificity has been typical for earlier isolated H1N1 human influenza **viruses**, but there is a new property of H3N2 **viruses** that has been circulating in the human population during recent years. Propagation of human **viruses** in chicken embryonated eggs resulted in a selection of variants with amino acid substitutions near the HA receptor-binding site, namely Gln226Arg or Asp225Gly for H1N1 **viruses** and Leu194Ile and Arg220Ser for H3N2 **viruses**. These HA mutations disturb the observed strict 6'SLN specificity of recent human influenza **viruses**.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 6 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:464387 CAPLUS
DOCUMENT NUMBER: 139:347792
TITLE: The effect of losing glycosylation sites near the receptor-binding region on the receptor phenotype of the human influenza **virus** H1N1
AUTHOR(S): **Marinina, V. P.; Gambaryan, A. S.**; Bovin, N. V.; Tuzikov, A. B.; Shilov, A. A.; Sinitsyn, B. V.; Matrosovich, M. N.
CORPORATE SOURCE: Chumakov Institute of Poliomyelitis and Viral Encephalitides, Russian Academy of Sciences, Moscow, 142782, Russia
SOURCE: Molecular Biology (Moscow, Russian Federation, English Edition) (Translation of Molekulyarnaya Biologiya) (2003), 37(3), 468-472
CODEN: MOLBBJ; ISSN: 0026-8933
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The receptor properties of influenza **virus** A/USSR/90/77 isolates are studied. The isolates are peculiar for losing glycosylation sites at the Asn131 receptor-binding region (GS131) after passaging in mice and at the Asn158 region (GS158) after cultivation in the presence of mouse serum. The loss of each carbohydrate residue increases the influenza **virus** affinity for carbohydrate chains with the terminal group Neu5Acα2-6Gal and reduces its affinity for Neu5Acα2-3Gal receptors. The effect is more pronounced in the GS158-depleted **virus**. Upon substitution of asparagine by aspartic acid, the electrostatic component of **virus** binding to the receptor is altered because of the increased neg. charge on hemagglutinin. The **virus** receptor phenotype changes depending on the cultivation conditions. The isolate adapted to mice has higher affinity to mouse lung cell receptors, while the **virus** propagated in chick embryos in the presence of inhibitors has higher affinity to allantoic membrane cells.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 7 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:218725 CAPLUS
DOCUMENT NUMBER: 139:254780
TITLE: Polyglycine II nanosheets: Supramolecular antivirals?
AUTHOR(S): Tuzikov, Alexander B.; **Chinarev, Alexander A.**

; **Gambaryan, Alexandra S.**; Oleinikov, Vladimir A.; Klinov, Dmitry V.; Matsko, Nadezhda B.; Kadykov, Vasily A.; Ermishov, Mikhail A.; Demin, Il'ya V.; Demin, Victor V.; Rye, Phil D.; Bovin, Nicolai V.

CORPORATE SOURCE: Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, Moscow, 117997/V-437, Russia

SOURCE: ChemBioChem (2003), 4(2-3), 147-154
CODEN: CBCHFX; ISSN: 1439-4227

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Tetraantennary peptides [glycinen-NHCH2]4C can form stable non-covalent structures by self-assembly through **intermol**. hydrogen bonding. The oligopeptide chains assemble as polyglycine II to yield submicron-sized, flat, one-mol.-thick sheets. Attachment of α-N-acetylneuraminic acid (Neu5Acα) to the terminal glycine residues gives rise to water-soluble assembled glycopeptides that are able to bind influenza **virus multivalently** and inhibit adhesion of the **virus** to cell 103-fold more effectively than a monomeric glycoside of Neu5Acα. Another antiviral strategy based on **virus**-promoted assembly of the glycopeptides was also demonstrated. Consequently, the self-assembly principle offers new perspectives on the design of **multivalent** antivirals.

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 8 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:913158 CAPLUS

DOCUMENT NUMBER: 139:94830

TITLE: Neoglycoconjugates Based on Dendrimer Poly(aminoamides)

AUTHOR(S): Tsvetkov, D. E.; Cheshev, P. E.; Tuzikov, A. B.; Chinarev, A. A.; Pazynina, G. V.; Sablina, M. A.; **Gambaryan, A. S.**; Bovin, N. V.; Rieben, R.; Shashkov, A. S.; Nifant'ev, N. E.

CORPORATE SOURCE: Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Moscow, 119991, Russia

SOURCE: Russian Journal of Bioorganic Chemistry (Translation of Bioorganicheskaya Khimiya) (2002), 28(6), 470-486
CODEN: RJBCET; ISSN: 1068-1620

PUBLISHER: MAIK Nauka/Interperiodica Publishing

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Neoglycoconjugates containing 4, 8, 32, and 64 terminal residues of B-disaccharide (BDI) or N-acetylneuraminic acid (Neu5Ac) attached to poly(aminoamide)-type dendrimers (PAMAMs) were synthesized. The ability of BDI conjugates to bind natural xenoantibodies (anti-BDI antibodies) and the ability of Neu5Ac conjugates to inhibit the hemagglutinin-mediated adhesion of influenza **virus** were studied. The biol. activity of PAMAM conjugates turned out to be higher than that of free carbohydrate ligands, but less than that of **multivalent glycoconjugates** based on other types of synthetic polymeric carriers. A conformational anal. of PAMAM matrixes and resulting conjugates was performed to determine the statistical distances between carbohydrate ligands. The computations revealed the tendency of the PAMAM chains toward compaction and formation of dense globules. The process results in a decrease in the distances between the carbohydrate ligands in the conjugates and, hence, could affect the ability of **glycoconjugates** to efficiently bind the polyvalent carbohydrate-recognizing proteins.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 9 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:482123 CAPLUS

DOCUMENT NUMBER: 137:213506

TITLE: Differences in receptor specificity between the influenza **viruses** of duck, chicken, and human

AUTHOR(S): **Gambaryan, A. S.**; Yamnikova, S. S.; Lvov, D. K.; Robertson, J. S.; Webster, R. G.; Matrosovich, M. N.

CORPORATE SOURCE: Chumakov Institute of Poliomyelitis and Viral Encephalitides, Russian Academy of Medical Sciences, Moscow Region, 142782, Russia

SOURCE: Molecular Biology (Moscow, Russian Federation, English

Language)(Translation of Molekulyarnaya Biologiya) (2002), 36(3), 429-435
CODEN: MOLBBJ; ISSN: 0026-8933
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The affinity of the duck, chicken, and human influenza **viruses** to the host cell sialosides was determined, and considerable distinctions between duck and chicken **viruses** were found. Duck **viruses** bind to a wide range of sialosides, including the short-stem gangliosides. Most of the chicken **viruses**, like human ones, lose the ability to bind these gangliosides, which strictly correlates with the appearance of carbohydrate at position 158-160. The affinity of the chicken **viruses** to sialoglycoconjugates of chicken intestine as well as chicken, monkey, and human respiratory epithelial cells exceeds that of the duck **viruses**. The human influenza **viruses** have high affinity to the same cells but do not bind at all to the duck epithelial cell. This testifies to the absence of 6'-sialylgalactose residues from the duck cells, in contrast to chicken and monkey cells. The alteration of the receptor specificity of chicken **viruses** in comparison with duck ones results in the similarity of the patterns of accessible cells for chicken and human influenza **viruses**. This may be the cause of the appearance of the line of H9N2 **viruses** from Hong Kong live bird markets with receptor specificity similar to that of H3N2 human **viruses**, and of the ability of H5N1 and H9N2 chicken influenza **viruses** to infect humans.
REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 10 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:458435 CAPLUS
DOCUMENT NUMBER: 138:117255
TITLE: Polymeric inhibitor of influenza **virus** attachment protects mice from experimental influenza infection
AUTHOR(S): **Gambaryan, A. S.**; Tuzikov, A. B.; Chinarev, A. A.; Juneja, L. R.; Bovin, N. V.; Matrosovich, M. N.
CORPORATE SOURCE: M.P. Chumakov Institute of Poliomyelitis and Viral Encephalitides, Russian Academy of Medical Sciences, Moscow, 142 782, Russia
SOURCE: Antiviral Research (2002), 55(1), 201-205
CODEN: ARSRDR; ISSN: 0166-3542
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Synthetic sialic acid-containing macromols. inhibit influenza **virus** attachment to target cells and suppress the **virus**-mediated hemagglutination and neutralize **virus** infectivity in cell culture. To test the protective effects of attachment inhibitors in vivo, mice were infected with mouse-adapted influenza **virus** A/Aichi/2/68 (H3N2) and treated with synthetic polyacrylamide-based sialylglycopolymer PAA-YDS bearing moieties of (Neu5Acα2-6Galβ1-4GlcNAcβ1-2Manα1)2-3,6Manβ1-4GlcNAcβ1-4GlcNAc. Single intranasal inoculations with PAA-YDS 30 min before or 10 min after infection increased the survival of mice. Multiple treatments with aerosolized PAA-YDS on days 2-5 post infection also increased survival, alleviated disease symptoms, and decreased lesions in the mouse lungs. These data suggest that synthetic polyvalent inhibitors of **virus** attachment can be used for prevention and treatment of influenza.
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 11 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:506134 CAPLUS
DOCUMENT NUMBER: 135:239058
TITLE: Functional match between influenza **virus** hemagglutinin and neuraminidase is restored after gene reassortment
AUTHOR(S): Rudneva, I. A.; **Gambaryan, A. S.**; Shilov, A. A.; Sinitsyn, B. V.; Kropotkina, E. A.; Il'yushina, N. A.; Kaverin, N. V.
CORPORATE SOURCE: Ivanovsky Institute of Virology, Russian Academy of Medical Sciences, Moscow, 123098, Russia
SOURCE: Molecular Biology (Moscow, Russian Federation, English Language)(Translation of Molekulyarnaya Biologiya)

(2001), 35(3), 423-425
CODEN: MOLBBJ; ISSN: 0026-8933
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Influenza **virus** A (FluA) reassortants with low-functional neuraminidase (NA) of subtype N1 and hemagglutinin (HA) of subtypes H2, H3, H4, and H13 display virion **aggregation** and accumulate to a lower titer because sialyl residues are not completely removed from virion components. Nonaggregating variants of FluA (H13N1) were shown to result from a mutation that reduces the HA affinity for sialyl substrates. Amino acid substitution K156E, which increases a neg. charge at the edge of the receptor-binding pocket of HA large subunit (HA1), was revealed in two independent variants. This substitution was the only difference between HA1 of the original reassortant and one of its variants and, therefore, accounted for restoration of the functional match between HA and NA.
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 12 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:417253 CAPLUS
DOCUMENT NUMBER: 135:16340
TITLE: Arrays of glycan molecules (glycoarrays) on the surface of biochips (glycochips) and uses thereof
INVENTOR(S): Ortigao, Flavio Ramalho; Mecklenburg, Michael William; **Bovin, Nicolai Vladimirovich**; Nifant'ev, Nikolay Eduardovich
PATENT ASSIGNEE(S): Thermo Hybaid G.m.b.H., Germany; Syntesome Gesellschaft fuer Medizinische Biochemie m.b.H.
SOURCE: PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001040796	A2	20010607	WO 2000-EP11975	20001129
WO 2001040796	A3	20011220		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: EP 1999-123712 A 19991129
AB The present invention relates to arrays of discrete sensing elements of glycans (glycoarrays) wherein glycans are immobilized on a solid support (glycochips). Furthermore, the present invention relates to a method of producing such glycoarrays comprising immobilization of a glycan on a preferably streptavidin coated sensing surface via biotin or a derivative thereof. In addition, the present invention relates to the use of such glycoarrays for discriminating complex biol. samples, diagnosing a disease which correlates with the presence or absence of glycan binding mols. as well as to methods of identifying an organism by generation of signal pattern from a biol. sample, which is indicative for the presence or absence of a particular organism. Furthermore, the present invention relates to a kit comprising the glycoarray of the invention useful in diagnostic assays.

L14 ANSWER 13 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:31361 CAPLUS
DOCUMENT NUMBER: 134:101139
TITLE: Preparation of self-associating compounds and their **aggregate** bodies for use as medicaments
INVENTOR(S): **Bovin, Nikolai Vladimirovich; Tusikov, Alexandr Borisovich; Chinarev, Alexandr Alexandrovich; Dicusar, Mariya Alexandrovna**; Gambariyan, Alexandra Sergeevna; **Marinina, Valentina Petrovna**
PATENT ASSIGNEE(S): Syntesome Gesellschaft fur Medizinische Biochemie m.b.H., Germany

SOURCE: PCT Int. Appl., 60 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001002018	A2	20010111	WO 2000-EP6139	20000630
WO 2001002018	A3	20020314		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CU, CZ, DE, DK, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 19930177	A1	20010111	DE 1999-19930177	19990630
EP 1223984	A2	20020724	EP 2000-949235	20000630
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
JP 2003503465	T2	20030128	JP 2001-507508	20000630
PRIORITY APPLN. INFO.:			DE 1999-19930177 A	19990630
			WO 2000-EP6139 W	20000630

AB Title compds., [e.g., {α-Neu5Ac-OCH2-4-C6H4-NHC(O)CH2NHC(O)(CH2)4C(O)(NHCH2C(O))0-7NHCH2}4C], in which the terminal portion of each arm may contain fragments capable of cellular receptor blocking, antibiotic, or therapeutic action, capable of forming self-**aggregates**, were prepared for use as drug-delivery or diagnostic agents. The tetrahedral core was synthesized from {H2NCH2}4C using BOC-peptide coupling chemical The terminal units were prepared from tetra-O-acetyl-5-acetylneuraminic acid Me ester derivs., 5-acetylneuraminic acid **α**-2→3-B-D-GalP-(1→4)-**β**-D-GluP-NHC(O)CH2NH2, or **α**-D-GalP-(1→3)-**β**-D-GalP-O-(CH2)3NH2 derivs. In a test of inhibition of **viral** cell adhesion, using influenza **virus**, {α-Neu5Ac-OCH2-4-C6H4-NHC(O)CH2NHC(O)(CH2)4C(O)(NH(CH2)5C(O))3(NHCH2C(O))5NHCH2}4C had relative activity (to Neu5Ac-α-CH2Ph) of 2500:1.

L14 ANSWER 14 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:29970 CAPLUS
DOCUMENT NUMBER: 134:249432
TITLE: Conversion of complex sialooligosaccharides into polymeric conjugates and their anti-influenza **virus** inhibitory potency
AUTHOR(S): Tuzikov, Alexander B.; **Gambaryan, Alexandra S.**; Juneja, Lekh Raj; Bovin, Nicolai V.
CORPORATE SOURCE: Shemyakin Institute of Bioorganic Chemistry, Moscow, 117871, Russia
SOURCE: Journal of Carbohydrate Chemistry (2000), 19(9), 1191-1200
CODEN: JCACDM; ISSN: 0732-8303
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To investigate the specificity of various influenza **virus** strains we have prepared polyacrylic type conjugates of undecasaccharide (Neu5Acα2-6Galβ1-4GlcNAcβ1-2Manα1)2-3,6Manβ1-4GlcNAcβ1-4GlcNAc (YDS), and trisaccharides 6'-sialyl-N-acetyllactosamine (6'SLN), 6'-sialyllactose (6'SL), and 3'-sialyllactose (3'SL). Free oligosaccharides were transformed to glycosylamine-1-N-glycyl derivs. by sequential action of NH4HCO3, chloroacetic anhydride, and aqueous NH3. The known derivatization protocol has been optimized for these sialooligosaccharides. Coupling of obtained aminospacered derivs. with poly(4-nitrophenyl acrylate) gave rise to two types of conjugates, namely with polyacrylic acid and polyacrylamide backbones; the conversion proceeded quant. and without destruction of the oligosaccharides. The content of oligosaccharides in the conjugates was 10, 20, and 30% mol for 3'SL, 6'SL, 6'SLN, and 2, 5 and 10% mol for YDS. Free oligosaccharides and the **glycoconjugates** were tested as inhibitors of influenza **virus** adhesion, and also as blockers of **virus** infectivity in MDCK cell culture. Biantennary YDS demonstrated similar activity to trisaccharide 6'SLN both as the free form and

neoglycoconjugate.
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 15 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:903038 CAPLUS
DOCUMENT NUMBER: 134:204808
TITLE: Amino acid changes in the hemagglutinin and matrix proteins of influenza A (H2) **viruses** adapted to mice
AUTHOR(S): Govorkova, E. A.; **Gambaryan, A. S.**; Claas, E. C. J.; Smirnov, Y. A.
CORPORATE SOURCE: The D.I. Ivanovsky Institute of Virology, Russian Academy of Medical Sciences, Moscov, 123098, Russia
SOURCE: Acta Virologica (English Edition) (2000), 44(5), 241-248
CODEN: AVIRA2; ISSN: 0001-723X
PUBLISHER: Slovak Academic Press Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Mouse-adapted (MA) variants of human and avian influenza A (H2) **viruses** were generated and characterized with respect to acquisition of virulence in mice. From the nucleotide sequence the amino acid sequence was deduced. The HA1 subunit of the hemagglutinin (HA) contained three amino acid substitutions in the A/black duck/New Jersey/1580/78-MA variant (Glu216→Asp, Lys307→Arg, and Thr318→Ile) and two substitutions in the A/JapanxBellamy/57-MA variant (Lys25→Thr and Ser203→Phe). In the M1 protein, there were two substitutions in the A/black duck/New Jersey/1580/78-MA variant (Asn30→Asp and Gln214→His) and a single substitution in the A/JapanxBellamy/57-MA variant (Met179→Lys). The M2 protein amino acid sequences of the parental **virus** and the MA variants differed by a single identical mutation (Asn93→Ser). The localization and atomic distances of the observed mutations on the three-dimensional (3D) structure of the HA protein were analyzed for influenza H2 **viruses**. The obtained results were similar to those published earlier on H1, H3 and H5 subtypes. The amino acid changes in the HA protein could be divided into two groups. In one group the substitutions were situated at the top of the mol., while in the other group they were clustered in the stem area at the interface region between three HA monomers. The anal. revealed that the substitutions observed in the MA variants probably increase the flexibility of the HA mol. and/or weaken the interactions between monomers or subunits in the HA trimer. The relationships of the observed amino acid changes in the HA and M proteins to the biol. properties of the resp. **viruses** and possible mechanisms involved in the acquisition of **viral** virulence are discussed.
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 16 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:642442 CAPLUS
DOCUMENT NUMBER: 133:293435
TITLE: Early alterations of the receptor-binding properties of H1, H2, and H3 avian influenza **virus** hemagglutinins after their introduction into mammals
AUTHOR(S): Matrosovich, Mikhail; Tuzikov, Alexander; **Bovin, Nikolai**; **Gambaryan, Alexandra**; Klimov, Alexander; Castrucci, Maria R.; Donatelli, Isabella; Kawaoka, Yoshihiro
CORPORATE SOURCE: Department of Virology and Molecular Biology, St. Jude Children's Research Hospital, Memphis, TN, 38105, USA
SOURCE: Journal of Virology (2000), 74(18), 8502-8512
CODEN: JOVIAM; ISSN: 0022-538X
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Interspecies transmission of influenza A **viruses** circulating in wild aquatic birds occasionally results in influenza outbreaks in mammals, including humans. To identify early changes in the receptor binding properties of the avian **virus** hemagglutinin (HA) after interspecies transmission and to determine the amino acid substitutions responsible for these alterations, we studied the HAs of the initial isolates from the human pandemics of 1957 (H2N2) and 1968 (H3N2), the European swine epizootic of 1979 (H1N1), and the seal epizootic of 1992 (H3N3), all of which were caused by the introduction of avian

virus HAs into these species. The **viruses** were assayed for their ability to bind the synthetic sialylglycopolymers 3'SL-PAA and 6'SLN-PAA, which contained, resp., 3'-sialyllactose (the receptor determinant preferentially recognized by avian influenza **viruses**) and 6'-sialyl(N-acetyllactosamine) (the receptor determinant for human **viruses**). Avian and seal **viruses** bound 6'SLN-PAA very weakly, whereas the earliest available human and swine epidemic **viruses** bound this polymer with a higher affinity. For the H2 and H3 strains, a single mutation, 226Q→L, increased binding to 6'SLN-PAA, while among H1 swine **viruses**, the 190E→D and 225G→E mutations in the HA appeared important for the increased affinity of the **viruses** for 6'SLN-PAA. Amino acid substitutions at positions 190 and 225 with respect to the avian **virus** consensus sequence are also present in H1 human **viruses**, including those that circulated in 1918, suggesting that substitutions at these positions are important for the generation of H1 human pandemic strains. These results show that the receptor-binding specificity of the HA is altered early after the transmission of an avian **virus** to humans and pigs and, therefore, may be a prerequisite for the highly effective replication and spread which characterize epidemic strains.

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 17 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:540042 CAPLUS
DOCUMENT NUMBER: 133:110033
TITLE: Method of preparing vaccine against tick-borne or Japanese encephalitis from **viral** suspension
INVENTOR(S): Ehl'bert, L. B.; Chumakov, M. P.; Mironova, L. L.; Grachev, V. P.; Krutyanskaya, G. L.; Kasten, Elena; Rubin, S. G.; **Gambaryan, A. S.**; Khapchaev, Yu. Kh.; Timofeev, A. V.; Matrosovich, M. N.
PATENT ASSIGNEE(S): Institut Poliomielita i Virusnykh Entsefalitov im. M. P. Chumakov, Russia
SOURCE: Russ. From: Izobreteniya 1998, (30), 322. CODEN: RUXXE7
DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2120804	C1	19981027	RU 1996-119607	19960930
PRIORITY APPLN. INFO.:			RU 1996-119607	19960930

AB Title only translated.

L14 ANSWER 18 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:423184 CAPLUS
DOCUMENT NUMBER: 133:174422
TITLE: Balanced hemagglutinin and neuraminidase activities are critical for efficient replication of influenza A **virus**
AUTHOR(S): Mitnaul, Lyndon J.; Matrosovich, Mikhail N.; Castrucci, Maria R.; Tuzikov, Alexander B.; **Bovin, Nikolai V.**; Kobasa, Darwyn; Kawaoka, Yoshihiro
CORPORATE SOURCE: Department of Virology and Molecular Biology, St. Jude Children's Research Hospital, Memphis, TN, 38101, USA
SOURCE: Journal of Virology (2000), 74(13), 6015-6020 CODEN: JOVIAM; ISSN: 0022-538X
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The SD0 mutant of influenza **virus** A/WSN/33 (WSN), characterized by a 24-amino-acid deletion in the neuraminidase (NA) stalk, does not grow in embryonated chicken eggs because of defective NA function. Continuous passage of SD0 in eggs yielded 10 independent clones that replicated efficiently. Characterization of these egg-adapted **viruses** showed that five of the **viruses** contained insertions in the NA gene from the PB1, PB2, or NP gene, in the region linking the transmembrane and catalytic head domains, demonstrating that recombination of influenza **viral** RNA segments occurs relatively frequently. The other five **viruses** did not contain insertions in this region but displayed decreased binding affinity toward sialylglycoconjugates, compared with the binding properties of the parental **virus**.

Sequence anal. of one of the latter **viruses** revealed mutations in the hemagglutinin (HA) gene, at sites in close proximity to the sialic acid receptor-binding pocket. These mutations appear to compensate for reduced NA function due to stalk deletions. Thus, balanced HA-NA functions are necessary for efficient influenza **virus** replication.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 19 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:189621 CAPLUS
DOCUMENT NUMBER: 133:28422
TITLE: Intergenic HA-NA interactions in influenza A **virus**: postreassortment substitutions of charged amino acid in the hemagglutinin of different subtypes
AUTHOR(S): Kaverin, N. V.; Matrosovich, M. N.; **Gambaryan, A. S.**; Rudneva, I. A.; Shilov, A. A.; Varich, N. L.; Makarova, N. V.; Kropotkina, E. A.; Sinitsin, B. V.
CORPORATE SOURCE: D.I. Ivanovsky Institute of Virology, Russian Academy of Medical Sciences, Moscow, 123098, Russia
SOURCE: Virus Research (2000), 66(2), 123-129
CODEN: VIREDF; ISSN: 0168-1702
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The present report describes studies performed with the use of influenza A **virus** H2N1 and H4N1 reassortants having hemagglutinin (HA) genes of A/Pintail/Primorie/695/76 (H2N3) and A/Duck/Czechoslovakia/56 (H4N6) strains resp. and neuraminidase (NA) gene of A/USSR/90/77 strain. The low-yield reassortants and their high-yield non-**aggregating** variants were studied in both direct and competitive binding assays with sialic acid-containing substrates. The non-**aggregating** variants were shown to have a decreased affinity as compared to the initial reassortants toward high-mol.-weight sialic acid-containing substrates. The sequencing of HA genes revealed that all non-**aggregating** variants of H2N1 and H4N1 reassortants had amino acid substitutions increasing the neg. charge of the HA mol. in the vicinity of the receptor-binding pocket. The results suggest that the influenza **virus** reassortants containing low-functional NA undergo similar postreassortment changes irresp. of the HA subtype: their receptor-binding activity decreased due to neg. charged amino acid substitutions in the vicinity of the receptor-binding pocket.

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 20 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:370705 CAPLUS
DOCUMENT NUMBER: 131:182223
TITLE: Effects of egg-adaptation on the receptor-binding properties of human influenza A and B **viruses**
AUTHOR(S): **Gambaryan, A. S.**; Robertson, J. S.; Matrosovich, M. N.
CORPORATE SOURCE: M. P. Chumakov Institute of Poliomyelitis and Viral Encephalitides, Russian Academy of Medical Sciences, Moscow, 142782, Russia
SOURCE: Virology (1999), 258(2), 232-239
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Propagation of human influenza **viruses** in embryonated chicken eggs (CE) results in the selection of variants with amino acid substitutions near the receptor-binding site of the hemagglutinin (HA) mol. To evaluate the mechanisms by which these substitutions enable human **virus** growth in CE, we studied the binding of 10 human influenza A (H1N1, H3N2) and B strains, isolated and propagated solely in MDCK cells, and of their egg-adapted counterparts to prepns. of cellular membranes, gangliosides, sialylglycoproteins, and sialyloligosaccharides. All egg-adapted variants differed from nonadapted strains by increased binding to the plasma membranes of chorio-allantoic (CAM) cells of CE and by the ability to bind to CAM gangliosides. In addition, there was no decrease in affinity for inhibitors within allantoic fluid. These findings indicate that growth of human influenza **viruses** in CE is restricted because of their inefficient binding to receptors on CAM cells and that gangliosides can play an important role in **virus** binding and/or

penetration. The effects of the egg-adaptation substitutions on the receptor-binding properties of the **viruses** include (i) enhancement of **virus** binding to the terminal Sia(α2-3)Gal determinant (substitutions in HA positions 190, 225 of H1N1 strains and in position 186 of H3N2 strains); (ii) a decrease of steric interference with more distant parts of the Sia(α2-3Gal)-containing receptors (a loss of glycosylation sites in positions 163 of H1 HA and 187 of type B HA); and (iii) enhanced ionic interactions with the neg. charged mols. due to charged substitutions at the tip of the HA [187, 189, 190 (H1), and 145, 156 (H3)]. Concomitantly with enhanced binding to Sia(α2-3)Gal-terminated receptors, all egg-adapted variants decreased their affinity for equine macroglobulin, a glycoprotein bearing terminal 6'-sialyl(N-acetyllactosamine)-moieties. (c) 1999 Academic Press.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 21 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:311556 CAPLUS
DOCUMENT NUMBER: 131:128794
TITLE: IgG antibodies to Lewis type 2 antigens in serum of H. pylori-infected and noninfected blood donors of different Lewis(a,b) blood-group phenotype
AUTHOR(S): Kurtenkov, Oleg; Klaamas, Kersti; Miljukhina, Ljudmila; Shljapnikova, Ljudmila; Ellamaa, Malle; **Bovin, Nikolai**; Wadstrom, Torkel
CORPORATE SOURCE: Institute of Experimental and Clinical Medicine, Tallinn, EE-0016, Estonia
SOURCE: FEMS Immunology and Medical Microbiology (1999), 24(2), 227-232
CODEN: FIMIEV; ISSN: 0928-8244
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Individuals of the Le(b+)/secretor phenotype revealed a stronger natural immune response to Le(x) and Le(y) epitopes irresp. of Helicobacter pylori serol. status. In contrast, H. pylori-infected Le(b-) type individuals showed a significantly higher proportion of strong responders to Le(x) antigen compared with the H. pylori-uninfected subgroup. The data suggest that the immune response to Lewis type 2 determinants is related to both the H. pylori serol. status and the Le(a,b) phenotype of the host.
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 22 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:238153 CAPLUS
DOCUMENT NUMBER: 131:19206
TITLE: Synthesis of neoglycoconjugate dendrimers
AUTHOR(S): Tsvetkov, Dmitry E.; Cheshev, Pavel E.; Tuzikov, Alexander B.; Pazynina, Galina V.; **Bovin, Nikolai V.**; Rieben, Robert; Nifant'ev, Nikolay E.
CORPORATE SOURCE: N.D. Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Moscow, 117913, Russia
SOURCE: Mendeleev Communications (1999), (2), 47-50
CODEN: MENCEX; ISSN: 0959-9436
PUBLISHER: Russian Academy of Sciences
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A series of polydentate dendritic neoglycoconjugates which contain 4, 8, 16, 32 B-disaccharide ligands were designed as probes to assess the influence of inter-ligand distance on binding to anti-B-disaccharide Igs.
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 23 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:523247 CAPLUS
DOCUMENT NUMBER: 129:228033
TITLE: Differences in the biological phenotype of low-yielding (L) and high-yielding (H) variants of swine influenza **virus** A/NJ/11/76 are associated with their different receptor-binding activity
AUTHOR(S): **Gambaryan, A. S.**; Matrosovich, M. N.; Bender, C. A.; Kilbourne, E. D.
CORPORATE SOURCE: M. P. Chumakov Institute of Poliomyelitis and Viral Encephalitides, Russian Academy of Medical Sciences, Moscow, 142782, Russia

SOURCE: Virology (1998), 247(2), 223-231
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Low- (L) and high-yielding (H) variants of A/sw/NJ/11/76 influenza **virus** were compared for their growth properties in embryonated chicken eggs and MDCK cells and for their binding affinity for the membrane fractions prepared from cells of the chicken embryo allantoic membrane, MDCK, and swine tracheal cells, as well as for soluble sialic acid containing macromols. and monovalent sialosides. The authors have shown that during infection in MDCK cells and in eggs, the progeny of the L variant remain predominantly cell associated, in contrast to those of H. As a result, accumulation of the L mutant in allantoic or culture fluid is significantly slowed in comparison with the H variant. Visualization of the infectious foci formed by the **viruses** in MDCK cell monolayers and on the allantoic membrane revealed that L spreads predominantly from cell to cell, while the spread of H involves release of the **virus** progeny into solution and its rapid distribution over the cell monolayer via convectional flow of the liquid In the binding assays, L displayed significantly higher binding affinity than H for cellular membranes, gangliosides, and sialylglycoproteins, however, the affinity of the variants for the monovalent sialic acid compds. was comparable. Unlike H, L bound strongly to dextran sulfate. The data obtained suggest that all distinctions of the L and H biol. phenotypes reported previously could be rationally explained by a more avid binding of the L variant to the surface of target cells, and that this effect is mainly due to enhanced electrostatic interactions. (c) 1998 Academic Press.

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 24 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:523242 CAPLUS
DOCUMENT NUMBER: 129:229086
TITLE: Effects of host-dependent glycosylation of hemagglutinin on receptor-binding properties of H1N1 human influenza A **virus** grown in MDCK cells and in embryonated eggs
AUTHOR(S): **Gambaryan, A. S.; Marinina, V. P.;** Tuzikov, A. B.; Bovin, N. V.; Rudneva, I. A.; Sinitsyn, B. V.; Shilov, A. A.; Matrosovich, M. N.
CORPORATE SOURCE: M. P. Chumakov Institute of Poliomyelitis and Viral Encephalitides, Russian Academy of Medical Sciences, Moscow, 142 782, Russia
SOURCE: Virology (1998), 247(2), 170-177
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB There is growing evidence that the receptor-binding characteristics of influenza **viruses** are affected by the host-dependent glycosylation of **viral** hemagglutinin (HA). To better understand these effects, we propagated two variants of the human influenza **virus** USSR/90/77 (which differed by the mutation Asn131 → Asp131 in the glycosylation sequon of their HA) in either embryonated chicken eggs of MDCK cells. Those variants were then compared for their ability to bind soluble receptor analogs and to attach to receptors represented on a solid phase. The carbohydrate chain at position 131 of the HA (CHO131) interfered with **virus** binding to soluble Sia2-6Gal-containing macromol. receptors, but had little or no effect on its binding to Sia2-3Gal-containing macromols. This specificity could be explained by the different orientation of the asialic parts of the 2-3-linked sialosides vs. 2-6-linked sialosides with respect to the receptor-binding site (Eisen, M.B.; et al., 1997). In the case of **virus** attachment to solid-phase immobilized receptors, MDCK-grown **viruses** bound substantially more weakly than their egg-grown counterparts to receptors of avian origin, whereas binding to mammalian cell membranes was only marginally affected by differences in host-specific glycosylation of the **virus**. Our data indicate that the effects of the carbohydrate side chains of HA on **virus** receptor-binding activity are dependent on both the cells in which the **virus** was grown and the nature of the cellular receptors or intercellular inhibitors to which the **virus** binds. (c) 1998 Academic Press.

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 25 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:312223 CAPLUS
DOCUMENT NUMBER: 129:80531
TITLE: Postreassortment changes in influenza A **virus** hemagglutinin restoring HA-NA functional match
AUTHOR(S): Kaverin, N. V.; **Gambaryan, A. S.**; Bovin, N. V.; Rudneva, I. A.; Shilov, A. A.; Khodova, O. M.; Varich, N. L.; Sinitsin, B. V.; Makarova, N. V.; Kropotkina, E. A.
CORPORATE SOURCE: D. I. Ivanovsky Institute of Virology, Russian Academy of Medical Sciences, Moscow, 123098, Russia
SOURCE: Virology (1998), 244(2), 315-321
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An important function of influenza **virus** neuraminidase (NA) is the removal of sialic acid residues from virion components in order to prevent the **aggregation** of **virus** particles. In previous communications we have reported that reassortant **viruses** containing the NA gene of A/USSR/90/77 (H1N1) **virus** and HA genes of H3, H4, H10, or H13 subtypes had a tendency to virion **aggregation** at 4°C and that the virion clusters irreversibly dissociated after the treatment with **bacterial** neuraminidase. It was concluded that in such reassortants the removal of sialic acid residues is inefficient. Nonaggregating variants of the reassortants were selected in the course of serial passages in embryonated chicken eggs. In the present paper a reassortant **virus**, R2, having the HA gene of A/Duck/Ukraine/1/63 (H3N8) **virus** and the other genes of A/USSR/90/77 (H1N1) **virus**, as well as its non-**aggregating** passage variants and both parent **viruses**, have been studied in order to reveal the presence of unremoved sialic acid residues in the virions. An assay of sialic acid content by HPLC with fluorescent detection has revealed the presence of sialic acid in the purified **virus** prepns. of A/USSR/90/77 (H1N1) **virus** and the R2 reassortant and its nonaggregating variants, whereas only trace amts. of sialic acid have been detected in the A/Duck/Ukraine/1/63 (H3N8) parent **virus**. The data obtained with the use of the labeled "indicator" **virus** suggest that the unremoved sialic acid residues are present at the virion surface. The nonaggregating variants have been shown to possess a lower affinity toward high-mol.-weight sialic acid-containing substrates compared to the initial reassortant R2. Sequencing of HA genes has revealed amino acid changes in the nonaggregating variants compared to the initial reassortant. One substitution, N248D in HA1, is the same in two independently selected nonaggregating variants. The presented data suggest that the complete removal of sialic acid residues by **viral** NA from the virion components is not obligatory for the absence of **virus** particle **aggregation**; the latter may be achieved (in the reassortants and, presumably, in the wild-type **virus**) through a balance between the degree of HA affinity toward the sialic acid-containing receptors and the extent of the removal of sialic acid residues by NA.
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 26 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:305243 CAPLUS
DOCUMENT NUMBER: 129:28205
TITLE: Synthesis of insulin fragments and study of their physicochemical and immunological properties
AUTHOR(S): Panin, L. E.; **Tusikov, F. V.**; Poteryaeva, O. N.; Maksyutov, A. Z.; Tusikova, N. A.; Sabirov, A. N.
CORPORATE SOURCE: Institute of Biochemistry, Siberian Division, Russian Academy of Medical Sciences, Novosibirsk, 630117, Russia
SOURCE: Bioorganicheskaya Khimiya (1997), 23(12), 953-960
CODEN: BIKHD7; ISSN: 0132-3423
PUBLISHER: MAIK Nauka
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB A two-chain peptide was predicted as a receptor binding site of insulin on the basis of theor. conformational anal. This dimeric peptide, consisting of the C-terminal A18-A21 tetrapeptide of the insulin A-chain and the C-terminal B17-B30 tetradecapeptide of the insulin B-chain connected with a disulfide bridge, was synthesized along with the C-terminal

nonadecapeptide. The anal. of the **aggregation** state of human insulin and the synthesized linear and dimeric peptides was performed by the small-angle X-ray scattering method. Specific antibodies were produced after rabbit immunization with the dimeric peptide-BSA conjugate. The immunol. activities of the model dimeric peptide and the corresponding insulin fragment were determined

L14 ANSWER 27 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:219739 CAPLUS
DOCUMENT NUMBER: 128:278972
TITLE: **Glycoconjugates** as **virus** cell adhesion inhibitors
INVENTOR(S): **Bovin, Nikolai**; Matrosovich, Mikhail; Tuzikov, Alexandr; **Chinarev, Alexandr**; **Gambaryan, Alexandra**; Robertson, James
PATENT ASSIGNEE(S): Syntesome Gesellschaft fuer Med. Biochemie m.b.H., Germany
SOURCE: PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9814215	A2	19980409	WO 1997-EP5389	19971001
WO 9814215	A3	19980820		
W: CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19640791	A1	19980416	DE 1996-19640791	19961002
CA 2239296	AA	19980409	CA 1997-2239296	19971001
EP 863769	A1	19980916	EP 1997-948758	19971001
EP 863769	B1	20020703		
R: AT, BE, CH, DE, FR, GB, IT, LI				
JP 2002514186	T2	20020514	JP 1998-516240	19971001
AT 219947	E	20020715	AT 1997-948758	19971001

PRIORITY APPLN. INFO.: DE 1996-19640791 A 19961002
WO 1997-EP5389 W 19971001
OTHER SOURCE(S): MARPAT 128:278972
AB The host-cell adhesion by human influenza **viruses** is inhibited by 6'-sialyl-N-acetyllactosamine conjugates [I; R1, R3 = acyl, thioacyl; R2 = H, OH, ZA; A = (substituted) alkyl, (substituted) aryl; Z = O, S, NH; R4 = H, acyl; X = O, S, C1-4 alkylene; W = bifunctional spacer; P = **multivalent** carrier [polyacrylate, (N-substituted) polyacrylamide, (N-substituted) methacrylamide, poly(acrylic acid), polycarbonate, polyester, polyamide, polyanhydride, polyiminocarbonate, poly(ortho ester), polydioxanone, polyphosphazene, poly(hydroxy carboxylic acid), poly(amino acid), polysaccharide, protein, dextran, chitosan, glucan, liposomes, microparticles]]. I can bind to human influenza A (H1 and H3) and B **viruses** which have not been adapted by culturing in chicken eggs and therefore have an unaltered structure of the receptor-binding site on the **viral** hemagglutinin; they are useful prophylactically and therapeutically against influenza **virus** infections. Thus, 6'-sialyl-N-acetyllactosamine ammonium salt was converted to its N-glycyl derivative (II) by reaction with chloroacetic anhydride. Poly(4-nitrophenyl acrylate) was 20% substituted with II by reaction with II and ethanolamine to form II-substituted poly[N-(2-hydroxyethyl)acrylamide]. The affinity constant of this polymer conjugate for all strains of influenza A and B **virus** tested was in the range 0.01-0.1 μM, as determined by its inhibition of **viral** binding to fetuin.

L14 ANSWER 28 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:432048 CAPLUS
DOCUMENT NUMBER: 127:146908
TITLE: Avian influenza A **viruses** differ from human **viruses** by recognition of sialyloligosaccharides and gangliosides and by a higher conservation of the HA receptor-binding site
AUTHOR(S): Matrosovich, M. N.; **Gambaryan, A. S.**; Teneberg, S.; Piskarev, V. E.; Yamnikova, S. S.; Lvov, D. K.; Robertson, J. S.; Karlsson, K.-A.
CORPORATE SOURCE: M. P. Chumakov Inst. Poliomyelitis Viral Encephalitides, Russian Acad. Med. Sci., Moscow, 142 782, Russia

SOURCE: Virology (1997), 233(1), 224-234
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Avian influenza **virus** strains representing most hemagglutinin (HA) subtypes were compared with human influenza A (H1N1, H3N2) and B **virus** isolates, including those with no history of passaging in embryonated hen's eggs, for their ability to bind free N-acetylneuraminic acid (Neu5Ac) and sialyloligosaccharides in a competitive binding assay and to attach to gangliosides in a solid-phase adsorption assay. The avian **viruses**, irresp. of their HA subtype, showed a higher affinity for sialyl 3-lactose and the other Neu5Ac2-3Gal-terminated oligosaccharides and a lower affinity for sialyl 6-lactose than for free Neu5Ac, indicative of specific interactions between the HA and the 3-linked Gal and poor accommodation of 6-linked Gal in the avian receptor-binding site (RBS). Human H1 and H3 strains, by contrast, were unable to bind to 3-linked Gal, interacting instead with the asialic portion of sialyl-6(N-acetyllactosamine). Different parts of this moiety were recognized by H3 and H1 subtype **viruses** (Gal and GlcNAc, resp.). Comparison of the HA amino acid sequences revealed that residues in positions 138, 190, 194, 225, 226, and 228 are conserved in the avian RBS, while the human HAs harbor substitutions at these positions. A characteristic feature of avian **viruses** was their binding to Neu5Ac2-3Gal-containing gangliosides. This property of avian precursor **viruses** was preserved in early human H3 isolates, but was gradually lost with further circulation of the H3 HA in humans. Consequently, later human H3 isolates, as well as H1 and type B human strains, were unable to bind to short Neu5Ac2-3Gal-terminated gangliosides, an incompatibility that correlated with higher glycosylation of the HA globular head of human **viruses**. These results suggest that the RBS is highly conserved among HA subtypes of avian influenza **virus**, while that of human **viruses** displays distinctive genotypic and phenotypic variability.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 29 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:392588 CAPLUS
DOCUMENT NUMBER: 127:119496

TITLE: Specification of receptor-binding phenotypes of influenza **virus** isolates from different hosts using synthetic sialylglycopolymers: non-egg-adapted human H1 and H3 influenza A and influenza B **viruses** share a common high binding affinity for 6'-sialyl(N-acetyllactosamine)

AUTHOR(S): **Gambaryan, A. S.**; Tuzikov, A. B.; Piskarev, V. E.; Yamnikova, S. S.; Lvov, D. K.; Robertson, J. S.; Bovin, N. V.; Matrosovich, M. N.
CORPORATE SOURCE: M. P. Chumakov Inst. Poliomyelitis Viral Encephalitides, Moscow, 142 782, Russia

SOURCE: Virology (1997), 232(2), 345-350
CODEN: VIRLAX; ISSN: 0042-6822
PUBLISHER: Academic
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Synthetic sialylglycoconjugates bearing 3'-sialyllactose, 6'-sialyllactose, or 6'-sialyl(N-acetyllactosamine) moieties attached to the polyacrylic acid carrier (P-3-SL, P-6-SL, and P-6-SLN, resp.) were prepared and tested for their ability to bind to influenza **virus** isolates from different hosts in a competitive solid phase assay. The **virus** panel included egg-grown avian and porcine strains, as well as human **viruses** isolated and propagated solely in mammalian (MDCK) cells and their egg-adapted variants. A clear correlation was observed between the pattern of **virus** binding of 2 glycopolymers, P-3-SL and P-6-SLN, and the host species from which the **virus** was derived. Avian isolates displayed a high binding affinity for P-3-SL and a 2-3 orders of magnitude lower affinity for P-6-SLN. By contrast, all non-egg-adapted human A and B **viruses** bound P-6-SLN strongly but did not bind P-3-SL. Unlike the "authentic" human strains, their egg-adapted counterparts acquired an ability to bind P-3-SL, indicative of a shift in the receptor-binding phenotype toward the recognition of Neu5Ac2-3Gal-terminated sugar sequences. Among the porcine **viruses** and human isolates with porcine hemagglutinin, few displayed an avian-like binding phenotype, while others differed from both avian and human strains by a reduced ability to discriminate between

P-3-SL and P-6-SLN. These data show that sialylglycopolymers may become a useful tool in studies on mol. mechanisms of interspecies transfer, tissue specificity, and other structure-function relationships of the influenza **virus** hemagglutinin.
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 30 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:736760 CAPLUS
DOCUMENT NUMBER: 126:112729
TITLE: Monovalent and polymeric 5N-thioacetamido sialosides as tightly-bound receptor analogs of influenza **viruses**
AUTHOR(S): Tuzikov, A. B.; Byramova, N. E.; Bovin, N. V.; **Gambaryan, A. S.**; Matrosovich, M. N.
CORPORATE SOURCE: Shemyakin Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow, 117871, Russia
SOURCE: Antiviral Research (1997), 33(2), 129-134
CODEN: ARSRDR; ISSN: 0166-3542
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A possible approach to the development of synthetic inhibitors of influenza **virus** attachment to host cells is based on the anchoring of the min. receptor determinant of influenza **virus**, sialic acid, to a polymeric carrier. In this study, the effect of substitution of oxygen by sulfur in the 5N-acetyl moiety of sialic acid on the binding of monovalent and polymeric sialosides by A and B influenza **virus** strains was investigated. The polymeric inhibitor with pendant 5N-thioacetylneuraminic acid residues was more broadly active against different **virus** strains than the one prepared from the Neu5Ac ligand.
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 31 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:664342 CAPLUS
DOCUMENT NUMBER: 123:79431
TITLE: Human influenza **virus** recognition of sialyloligosaccharides
AUTHOR(S): **Gambaryan, A. S.**; Piskarev, V. E.; Yamskov, I. A.; Sakharov, A. M.; Tuzikov, A. B.; Bovin, N. V.; Nifant'ev, N. E.; Matrosovich, M. N.
CORPORATE SOURCE: M.P. Chumakov Inst. Poliomyelitis, Russian Acad. Med. Sci., Moscow, 142 782, Russia
SOURCE: FEBS Letters (1995), 366(1), 57-60
CODEN: FEBLAL; ISSN: 0014-5793
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Sialic acids are essential components of cell-surface receptors utilized by influenza **viruses**. To evaluate the recognition of asialic sugar parts of the receptor, three representative strains of human influenza A and B **viruses** were tested for their binding of a panel of sialyloligosaccharides. The highest affinity binding carbohydrate determinants recognized by the **viruses** in a context of different core structures were Neu5Acα2-3Gal for the type B **virus**, Neu5Acα2-6Gal for the H3 subtype **virus**, and Neu5Acα2-6Galβ1-4GlcNAc for the H1 subtype **virus**. Penultimate to these determinants, parts of sialyloligosaccharides studied either contributed less significantly to the binding affinity, or interfered with the binding.

L14 ANSWER 32 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:569813 CAPLUS
DOCUMENT NUMBER: 121:169813
TITLE: Synthetic polymeric inhibitors of influenza **virus** receptor-binding activity suppress **virus** replication
AUTHOR(S): Mochalova, L. V.; Tuzikov, A. B.; **Marinina, V. P.**; **Gambaryan, A. S.**; Byramova, N. E.; Bovin, N. V.; Matrosovich, M. N.
CORPORATE SOURCE: Institute of Poliomyelitis and Viral Encephalitides, Russian Academy of Medical Sciences, Moscow, Russia
SOURCE: Antiviral Research (1994), 23(3-4), 179-90
CODEN: ARSRDR; ISSN: 0166-3542

DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new approach to anti-influenza chemotherapy is based on the development of synthetic inhibitors of **virus** attachment to host cells. These inhibitors are prepared by anchoring the min. receptor determinant of influenza **virus**, sialic acid, to polymeric or liposomal carriers. In this study, a series of poly(acrylic acid-co-acrylamides) and dextrans bearing pendant glycylamidobenzylsialoside groups were synthesized and evaluated for their binding to a panel of influenza A and B **virus** strains and for their ability to inhibit **virus** infectivity in cell culture. Significant type-, subtype-, and strain-specific variation in **virus** susceptibility to the synthetic inhibitors was observed Among the **viruses** tested, H3 subtype strains evolved in humans since 1975 were the most sensitive, while the earlier H3 **viruses** and the type B strains were resistant. The **virus**-inhibitory potency of the polymeric sialosides correlated with their binding to the **virus**, and was dependent on the **virus** affinity for the ligand, the d. of the ligand, and the nature and mol. mass of the polymeric carrier. In embryonated eggs, the antiviral effect of poly(acryloyl-glycylamidobenzylsialoside-co-acrylic acid) was comparable to that of equine α2-macroglobulin.

L14 ANSWER 33 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:549048 CAPLUS
DOCUMENT NUMBER: 121:149048
TITLE: Preparation of neuraminic acid derivatives for **viral** attachment inhibitors
INVENTOR(S): Bovin, Nicolai V.; Byramova, Nargiz E.; Tuzikov, Alexander B.; Matrosovich, Mikhail N.; Mochalova, Larisa V.; **Gambaryan, Alexandra S.**
PATENT ASSIGNEE(S): Scientific Dimensions USA, Inc., USA
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9411005	A1	19940526	WO 1992-US9745	19921109
W: AT, AU, BB, BG, BR, CA, CH, CS, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, PL, RO, RU, SD, SE, UA, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG				
AU 9331774	A1	19940608	AU 1993-31774	19921109
US 5571836	A	19961105	US 1995-438661	19950509
PRIORITY APPLN. INFO.:			WO 1992-US9745	19921109

OTHER SOURCE(S): MARPAT 121:149048
AB **Viral** attachment to target cells is inhibited by novel neuraminic acid compds. I [R1 = H, acetyl; R2 = H, Me; Y = H, NHC(S)CH2NHCO2C(Me)3, NHC(S)CH2NH2]. The novel compds. bind **virus** particles and are substantially uncleaved by neuraminidase. Coupling of the novel compds. to a polymer further inhibits **viral** attachment. I can be used for treating or preventing **viral** infection. Preparation of I compds. is included, as are synthesis of a polyacrylic acid conjugate, a neuraminidase resistance assay, and **virus** affinity testing.

L14 ANSWER 34 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:104706 CAPLUS
DOCUMENT NUMBER: 120:104706
TITLE: Probing of the receptor-binding sites of the H1 and H3 influenza A and influenza B **virus** hemagglutinins by synthetic and natural sialosides
AUTHOR(S): Matrosovich, M. N.; **Gambaryan, A. S.**; Tuzikov, A. B.; Byramova, N. E.; Mochalova, L. V.; Golbraikh, A. A.; Shenderovich, M. D.; Finne, J.; Bovin, N. V.
CORPORATE SOURCE: Inst. Polio. Viral Encephalitides, Moscow, 142 782, Russia
SOURCE: Virology (1993), 196(1), 111-21
CODEN: VIRLAX; ISSN: 0042-6822
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To compare features of the receptor-binding sites (RBSs) of different influenza **virus** hemagglutinins (HA), binding of a number of synthetic sialic acid (SA) analogs and natural sialosides by a panel of about 30 human influenza A and B **virus** strains was studied in a competitive ligand binding assay. For all the **viruses** tested, the N-acetyl group of Neu5Ac, as well as the natural orientation of the carboxylic group at C2 and the hydroxylic group at C4, was essential for binding. Significant type- and subtype-specific differences were observed in **virus** recognition of asialic parts of sialosides. H1 strains, unlike H3 and type B **viruses**, bound α2-6-sialyl-N-acetyllactosamine with about an order of magnitude higher affinity than α2-6-sialyllactose (6'SL). The H1 **viruses** and the H3 strains with Gln in position 226 of HA, but not the H3 strains with Leu-226, bound 6'SL with a lower affinity than α2-3-sialyllactose; this effect correlated clearly with the preferential binding by the former **viruses** of unsubstituted αNeu5Ac compared to the Me α-glycoside of Neu5Ac. Thus, differentiation between the types of the SA-Gal linkage by the A **viruses** appeared to depend, at least partially, upon the recognition by the HA of the first hydrocarbon group of the aglycon. Type B **virus** strains were distinct in having a lower affinity for the Neu5Ac moiety and in providing a higher contribution of the asialic portions of sialosides to the HA-ligand interactions. The last effects are presumably due to the amino acid insertions in the type B HA surrounding the RBS, which makes the receptor-binding pocket deeper. Thus, while the functional groups of Neu5Ac are recognized by the RBSs of all influenza **viruses**, the magnitude of their contribution to the binding energy, as well as the contribution of the asialic portion of the receptor, may vary in dependence upon the **virus** type, subtype, and strain.

L14 ANSWER 35 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1992:647903 CAPLUS
DOCUMENT NUMBER: 117:247903
TITLE: A solid-phase enzyme-linked assay for influenza **virus** receptor-binding activity
AUTHOR(S): **Gambaryan, A. S.**; Matrosovich, M. N.
CORPORATE SOURCE: Inst. Polio. Viral Encephal., Moscow, Russia
SOURCE: Journal of Virological Methods (1992), 39(1-2), 111-23
CODEN: JVMEDH; ISSN: 0166-0934
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Receptor-binding properties of influenza **viruses** are usually characterized by the ability of **viruses** to interact with more or less defined sialic acid-containing carbohydrates, glycoproteins, or glycolipids assayed by hemagglutination (HA) or HA inhibition (HAI) tests. To overcome some drawbacks of these tests a solid-phase enzyme-linked assay analogous to sandwich ELISA was developed. The **virus** is adsorbed specifically to the well of plastic microtiter plates coated with fetuin, and the binding of horseradish peroxidase (HRP)-labeled sialoglycoproteins (SGPs) by the solid phase-attached virions is measured. The binding of unlabeled compds. is measured by competition with the attachment of a standard fetuin-HRP conjugate. The assay is easy to perform, quant. (allows the determination of affinity consts.), and sensitive (even the weak binding of free N-acetylneuraminic acid with Kd about 10-1-10-2 M-1 can be studied). Due to a higher stability of components of the present test system, as compared to red blood cells, the influence of pH, ionic strength, and other factors on **virus**-receptor interaction can also be investigated.

L14 ANSWER 36 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1992:439850 CAPLUS
DOCUMENT NUMBER: 117:39850
TITLE: Development of synthetic inhibitors of myxovirus adsorption. Effect of chemical modifications on the activity of natural inhibitors of hemagglutination
AUTHOR(S): **Gambaryan, A. S.**; **Marinina, V. P.**; Reizin, F. N.; Matrosovich, M. N.; Chumakov, M. P.
CORPORATE SOURCE: Inst. Poliomielita Virusn. Entsefalitov, Moscow, USSR
SOURCE: Nov. Podkhody Khimioter. Virusn. Infekts. (1991), 20-7. Editor(s): Kukain, R. A. Zinatne: Riga, USSR.
CODEN: 57SRAH
DOCUMENT TYPE: Conference
LANGUAGE: Russian

AB The virucidal activity of synthetic inhibitors of myxovirus is described. In addition, the modification effect on the activity of hemagglutination inhibitors (e.g., sialic acid) is discussed.

L14 ANSWER 37 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1992:422976 CAPLUS
DOCUMENT NUMBER: 117:22976
TITLE: Influenza **viruses** differ in recognition of 4-O-acetyl substitution of sialic acid receptor determinant
AUTHOR(S): Matrosovich, M. N.; **Gambaryan, A. S.**; Chumakov, M. P.
CORPORATE SOURCE: Inst. Poliomyelitis Viral Encephalitides, 142 782, Russia
SOURCE: Virology (1992), 188(2), 854-8
CODEN: VIRLAX; ISSN: 0042-6822
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Equine α2-macroglobulin (EM), known to contain both Neu5Ac and Neu4,5Ac2 sialic acid residues, was treated with Vibrio cholerae sialidase for the selective removal of Neu5Ac and was compared with untreated EM for its binding by a panel of influenza **viruses**. Type A H3N3 **virus** strains having Leu in position 226 of their hemagglutinin (HA) changed the affinity for sialidase-treated EM only slightly, if at all, indicative of their ability to bind the 4-O-Ac-substituted Neu5Ac receptor determinant. At the same time, all B and H1N1 **viruses**, some H2N2 variants, as well as H3N2 strains with Gln-226 were unable to recognize Neu4,5Ac2 moieties of EM. Mol. modeling based on the known 3-dimensional structure of H3 HA complexed with sialyllactose (Wies, W. I. et al., 1988) predicts that the 4-O-Ac substituent of sialic acid would protrude with its carbonyl oxygen inside the receptor-binding site of HA, thus possibly interfering with binding.

L14 ANSWER 38 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:405051 CAPLUS
DOCUMENT NUMBER: 115:5051
TITLE: Recognition by human A and B influenza **viruses** of 8- and 7-carbon analogs of sialic acid modified in the polyhydroxyl side chain
AUTHOR(S): Matrosovich, M. N.; **Gambaryan, A. S.**; Reizin, F. N.; Chumakov, M. P.
CORPORATE SOURCE: Inst. Polio. Viral Encephalitides, Moscow, 142 782, USSR
SOURCE: Virology (1991), 182(2), 879-82
CODEN: VIRLAX; ISSN: 0042-6822
DOCUMENT TYPE: Journal
LANGUAGE: English
AB To evaluate the recognition by influenza **viruses** of the C9-C7 polyhydroxylated moiety of sialic acid (SA) receptor determinant, a novel assay was developed based on the assessment of binding by the solid-phase immobilized **virus** of the enzyme-labeled sialoglycoprotein fetuin treated NaIO4 or NaIO4/NaBH4 to contain a C8 aldehyde, C7 aldehyde, or corresponding hydroxyl analogs of SA. Some features of recognition by human influenza **viruses** of these SA analogs were type and subtype specific, especially marked differences being found between type A and type B **viruses**. At the same time a significant diversity was observed among **virus** strains belonging to the same subtype. The assay described provides a new tool for the differentiation of influenza **viruses** according to receptor binding properties and for an investigation of mol. interactions in the receptor binding site of the **virus**.

L14 ANSWER 39 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:17149 CAPLUS
DOCUMENT NUMBER: 114:17149
TITLE: Synthetic polymeric sialoside inhibitors of influenza **virus** receptor-binding activity
AUTHOR(S): Matrosovich, M. N.; Mochalova, L. V.; **Marinina, V. P.**; Byramova, N. E.; Bovin, N. V.
CORPORATE SOURCE: Inst. Polio. Viral Encephalitides, Moscow, 142 782, USSR
SOURCE: FEBS Letters (1990), 272(1-2), 209-12
CODEN: FEBLAL; ISSN: 0014-5793
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Anomeric aminobenzylglycosides of Neu5Ac were coupled with the polyacrylate carrier and a number of synthetic polyvalent sialosides obtained were investigated as inhibitors of influenza **virus** attachment. The inhibitory activity of polymeric sialosides was highly dependent upon

the Neu5Ac residue content and the nature of the carrier. The polyacrylic acid-based polymer bearing 10 mol% of Neu5Ac was 3 orders of magnitude more potent inhibitor than the corresponding monovalent benzylsialoside and considerably more active than fetuin.

L14 ANSWER 40 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1989:601724 CAPLUS
DOCUMENT NUMBER: 111:201724
TITLE: Enzyme immunoassay of non-ovalbumin substrate admixtures in inactivated influenza vaccines
AUTHOR(S): Matrosovich, M. N.; **Gambaryan, A. S.**; Kisin, V. V.
CORPORATE SOURCE: Inst. Polimielita Virusn. Entsefalit., USSR
SOURCE: Voprosy Virusologii (1989), 34(4), 491-5
CODEN: VVIRAT; ISSN: 0507-4088
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Non-ovalbumin compds. which are usually the cause of antigenic and anaphylactic activities of inactivated influenza vaccine were determined by enzyme immunoassay. The method is sensitive, specific, and reproducible, and it was recommended for the quality control and standardization of inactivated influenza vaccines.

L14 ANSWER 41 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1982:213553 CAPLUS
DOCUMENT NUMBER: 96:213553
TITLE: Effect of anion exchanger FAF swelling on its sorption properties
AUTHOR(S): Shataeva, L. K.; **Marinina, V. P.**; Radzevicius, K.; Mel'nikova, S. K.; Samsonov, G. V.
CORPORATE SOURCE: Inst. High Mol. Weight Compd., Leningrad, USSR
SOURCE: Prikladnaya Biokhimiya i Mikrobiologiya (1982), 18(1), 65-70
CODEN: PBMIAK; ISSN: 0555-1099
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB The effect of the swelling coefficient (SC) of anion exchanger FAF, a H2CO-PhOH condensation product (Cl- form), on its sorption property during its use for removing the ballast proteins and low-mol.-weight impurities from allantoic fluid and hepatic cultures from pigs was investigated. Thermoprocessing of the resin (0.5-0.7 mm) involved boiling with a 10-fold quantity of 0.2% HCl for several hours, withdrawing the sample at various stages, drying the resin under vacuum over P2O5 and then determining the dry weight and the SC. Thermoprocessing increased the SC of the resin and thus its sorption properties, but no structural changes of the resin were observed Resin with SCs of 3.5 and 4.0 showed 30-40% sorption of ballast proteins, and 50% sorption of reducing materials and neutral carbohydrates and some P.

L14 ANSWER 42 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1978:149938 CAPLUS
DOCUMENT NUMBER: 88:149938
TITLE: Study of DNA repair synthesis induced by UV irradiation in human cells chronically infected with tick-borne encephalitis **virus**
AUTHOR(S): Chekova, V. V.; **Marinina, V. P.**; Bogomolova, N. N.
CORPORATE SOURCE: Inst. Obshch. Genet., Moscow, USSR
SOURCE: Voprosy Virusologii (1978), (1), 104-7
CODEN: VVIRAT; ISSN: 0507-4088
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB In HEp-2 cells chronically infected with tick-borne encephalitis **virus**, the DNA repair rate after UV irradiation (100-1000 erg/mm2) decreased by .apprx.50% below that of noninfected cells or that of the cells with primary infection. Caffeine or Cd2+ ions did not affect the rate. Thus, **viral** infection can impair DNA repair rate.

L14 ANSWER 43 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1977:134274 CAPLUS
DOCUMENT NUMBER: 86:134274
TITLE: Formation of chromosomal anomalies induced by mutagens of various kinds in cells with active and defective repair systems
AUTHOR(S): Kuznetsova, G. I.; **Marinina, V. P.**; Zasukhina, G. D.

CORPORATE SOURCE: Inst. Obshch. Genet., Moscow, USSR
SOURCE: Mol. Mekh. Genet. Protsessov (1976), 86-94.
Editor(s): Dubinin, N. P. "Nauka": Moscow, USSR.
CODEN: 34XDAP
DOCUMENT TYPE: Conference
LANGUAGE: Russian
AB The system consisting of primary and transplanted Syrian hamster kidney cells was found to be the best of those examined for studying repair systems following chromosomal damage induced by UV iradn., chemical agents, or biol. factors. The cells possess diploid or near-diploid karyotypes and an effective(primary) and defective(transplanted) repair system. Repair of chromosome damage was observed in the cells following UV irradiation, but not after ethylenimine [151-56-4] treatment. Inoculation with RNA poliomyelitis **virus** resulted in the induction of aberrations with .apprx.42% frequency at 6 h, followed by a decrease, indicating the cells were capable of repair.

L14 ANSWER 44 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1974:13301 CAPLUS
DOCUMENT NUMBER: 80:13301
TITLE: Formation of chromosomal anomalies induced by poliomyelitis **virus** RNA in cells with active and defective systems of reparation
AUTHOR(S): Dubinin, N. P.; Goroshkina, G. I.; Zasukhina, G. D.; **Marinina, V. P.**
CORPORATE SOURCE: Inst. Obshch. Genet., Moscow, USSR
SOURCE: Doklady Akademii Nauk SSSR (1973), 212(3), 733-5 [Genet]
CODEN: DANKAS; ISSN: 0002-3264
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB A study was made of the chromosome aberrations produced in primary and transplantable cells from Syrian field mouse by the action of poliomyelitis **virus** RNA. The two types of cells respond differently not only to chemical mutagens and radiation, but also to biol. factors such as RNA, with considerable analogy between the action of RNA and of uv irradiation Generally this effect is a material decrease of the number of the count of aberrations at the end of a cell cycle in the primary cells with active repair systems and a stable count of aberrations in the transplantable cells with defective repair systems.

L14 ANSWER 45 OF 45 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1973:79977 CAPLUS
DOCUMENT NUMBER: 78:79977
TITLE: Effect of guanidine and testosterone on large-plaque and small-plaque variants of Chikungunya **virus**
AUTHOR(S): Zasukhina, G. D.; Frolova, M. M.; **Marinina, V. P.**
CORPORATE SOURCE: Inst. Polio. Viral Encephalitides, Moscow, USSR
SOURCE: Trudy Instituta Poliomielita i Virusnykh Entsefalitov Akademii Meditsinskikh Nauk SSSR (1971), 16, 188-95
CODEN: TMPVAP; ISSN: 0568-4609
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AB Guanidine [113-00-8] (400 μg/ml) and testosterone (I) [58-22-0] (10 μg/ml) increased the plaque size of the S+ variant of Chikungunya **virus** in 48-hr, and 120-144-hr chick embryo tissue cultures, but did not affect the plaque size of the S- variants. Both compds. increased the number of S+ and S- plaques in 120-144-hr-old tissue cultures.